What is claimed is:

1. A ferroelectric material, comprising:

a perovskite alloy comprising stacked planes of the form $(A'A''A'''\ldots)(B'_{x'(k)}B''_{x''(k)}B'''_{x'''(k)}\ldots)X_3$, wherein A',A'',A''',..., B',B'',B''',..., and X_3 represent atomic species, wherein at least two of B', B'', B''',... belong to different columns of the periodic table and wherein x'(k), x''(k), x'''(k),... are modulated parameters yielding the relative concentration of the B', B'', B''',... atoms, respectively, in each plane, k, of said alloy;

wherein said alloy is atomically ordered along a direction that is not the direction of polarization of the disordered alloy;

wherein said planes are stacked with a short stacking period; and

wherein said modulated parameters x'(k), x''(k), x'''(k),... are selected to obtain at a specific temperature dielectric and piezoelectric properties of said alloy that are substantially enhanced over the dielectric and piezoelectric properties of the disordered alloy, said specific temperature being selected from any temperature less than the Curie temperature of the disordered alloy.

2. The ferroelectric material of claim 1, wherein said stacking period is a four-plane period.

3. The ferroelectric material of claim 1, wherein said A' atom is lead, with no other A site atoms.

4. The ferroelectric material of claim 1, wherein said B' atom is Scandium.

5. The ferroelectric material of claim 1, wherein said B" atom is Niobium.

6. The ferroelectric material of claim 1 having no B site alloying elements other than Scandium and Niobium.

7. The ferroelectric material of claim 1, where said X atom is oxygen.

8. The ferroelectric material of claim 1, wherein said direction along which said alloy is atomically ordered is along the [001] direction.

9. A ferroelectric material, comprising:

a perovskite alloy comprising stacked planes of the form $(A'_{x'(k)} A''_{x''(k)} A'''_{x'''(k)}\ldots)(B'B''B'''\ldots)X_3$, wherein A',A'',A''',..., B',B'',B''',..., and X_3 represent atomic species, wherein at least two of A', A'', A''',... belong to different columns of the periodic table and wherein x'(k), x''(k), x'''(k),..., are modulated parameters yielding the relative concentration of the A', A'', A''',... atoms, respectively, in each plane, k, of said alloy;

wherein said alloy is atomically ordered along a direction that is not the direction of polarization of the disordered alloy;

wherein said planes are stacked with a short stacking period; and

wherein said modulated parameters x'(k), x''(k), x'''(k),... are selected to obtain at a specific temperature dielectric and piezoelectric properties of said alloy that are substantially enhanced over the dielectric and piezoelectric properties of the disordered alloy, said specific temperature being selected from any temperature less than the Curie temperature of the disordered alloy.

10. The ferroelectric material of claim 9, wherein said stacking period is a four-plane period.

11. The ferroelectric material of claim 9, where said X atom is oxygen.